DEPARTMENT OF THE ARMY

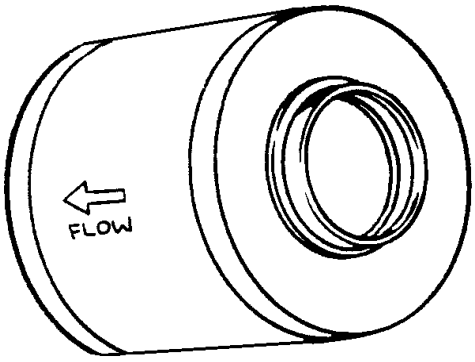
TECHNICAL BULLETIN

ON

CLEAN UP PROCEDURE

FOR BURNED OR RUPTURED

GAS-PARTICULATE (NBC) FILTERS



MODEL NUMBERS:

M48 (4240-01-161-3710)

AND

M48A1 (4240-01-363-1311)

HEADQUARTERS DEPARTMENT OF THE ARMY
March 2000

TECHNICAL BULLETIN

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 14 March 2000

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this MWO. If you find any mistakes or if you know of a way to improve the procedures in this MWO, please let us know. Submit your DA Form 2028-2 (Recommended Changes to Equipment Technical Publications) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on ACCESS REQUEST FORM. The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter, DA Form 2028, or DA Form 2028-2 direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-LC-CIP-WT, Rock Island, IL 61299-7630. The email address is amsta-ac-nml@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726. A reply will be furnished to you.

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CHAPTER 1

GENERAL INFORMATION

INTRODUCTION

1-1. PURPOSE.

This bulletin provides personnel with instructions for clean up to remove carbon from the Abrams series tanks after a fire in or significant damage has occurred to the M48 or M48A1 Gas-Particulate (NBC) Filters.

1-2. SCOPE.

This bulletin applies to the following vehicle:

Tank, Combat, Full-tracked: 120 MM Gun, M1A1 (2350-01-087-1095) General Abrams
Tank, Combat, Full-tracked: 120 MM Gun, M1A2 (2350-01-328-5964) General Abrams
Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP (2350-01-328-5964) General Abrams

CHAPTER 2

CLEAN UP PROCEDURE A FOR M1A1 TANK (WITH M48 FILTERS)

Section I. INTRODUCTION

2-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 3 for Procedure B of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48 use this procedure for M1A1 tank. If filters installed were M48A1 go to Chapter 3 (Procedure B for M1A1 tank).

b. Items listed in tables 2-1 and 2-2 are for the clean up of one M1A1 tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-264-24P-1 and TM 9-2350-264-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A FOR M1A1 TANK

2-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A.

Table 2-1 shows materials and expendable supplies required to perform the clean up of one M1A1 tank using Procedure A. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 2-1. Materials and Expendable Supplies for Procedure A.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Adhesive		8040-00-142-9193	1 bx	
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	

2-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 2-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY/ UI	REMARKS
Detergent, general purpose		7930-00-282-9699	1 gl	
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet long
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886

2-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 2-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY/ UI	REMARKS
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tags		**TBD**	A/R	Obtain from Hazardous Materials (HAZMAT) team
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A FOR M1A1 TANK

2-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A.

Table 2-2 shows the mandatory replacement parts required for the clean up of one M1A1 tank using this procedure. These parts are to be ordered through normal supply channels. Before ordering any parts you must check your vehicle Serial Number (S/N) to ensure you order the correct items (see Remarks column in table 2-2). These parts may be found in TM 9-2350-264-24P-1 and TM 9-2350-264-24P-2 Manuals.

Table 2-2. Mandatory Replacement Parts for Procedure A.

NOMENCLATURE	NSN	PART NO/CAGE	QTY/ UI	REMARKS
Boot, NBC duct	2510-01-201-0960	12324187 (19207)	1 ea	Hull
Cap, protective, dust	5340-01-369-1924	12931186 (19200)	1 ea	Turret
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48)	4240-01-161-3710	E5-19-7436 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Hull
Hose, nonmetallic	4720-01-201-1082	12324105 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-204-2603	12324169-2 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-201-4827	12324169-3 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-188-3191	12324460-1 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-188-7738	12324460-3 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-188-7739	12324460-5 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-189-9342	12324460-6 (19207)	1 ea	Turret – Use with vehicle S/N 1 thru 11269
Hose, nonmetallic	4720-01-189-4607	12324460-7 (19207)	1 ea	Turret – Use with vehicle S/N 1 thru 11269
Hose, nonmetallic	4720-01-320-5775	12324460-10 (19200)	1 ea	Turret – Use with vehicle S/N 11270 and subsequent
Hose, nonmetallic	4720-01-364-1556	12324460-11 (19200)	1 ea	Turret – Use with vehicle S/N 11270 and subsequent
Hose, preformed	4720-01-201-7980	12324147 (19207)	1 ea	Hull
Hose, preformed	4720-01-356-8754	12549126 (19200)	1 ea	Turret
Hose, preformed	4720-01-364-1633	12931197 (19200)	1 ea	Turret – Use with vehicle S/N 11270 and subsequent

2-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A - Continued.

Table 2-2. Mandatory Replacement Parts for Procedure A - continued.

NOMENCLATURE	NSN	PART NO/CAGE	QTY /UI	REMARKS
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-01-374-5430	12387269-40 (19207)	10 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	1015-01-187-1045	12324516 (19207)	1 ea	Hull/Turret

2-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A - Continued.

Table 2-2. Mandatory Replacement Parts for Procedure A - continued.

NOMENCLATURE	NSN	PART NO/CAGE	QTY /UI	REMARKS
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Tubing, nonmetallic	4710-01-187-7672	12325445-1 (19207)	1 ea	Turret – Use with vehicle S/N D6386 and L6396 thru 13117
Tubing, nonmetallic		12325445-2 (19200)	1 ea	Turret – Use with vehicle S/N 13118 and subsequent
Tubing, nonmetallic	4710-01-389-3151	12325446-2 (19207)	1 ea	Turret
Tubing, nonmetallic	4710-01-317-2234	12346122 (19200)	1 ea	Turret – Use with vehicle S/N 11270 and subsequent
Tubing, nonmetallic	4710-01-363-6800	12931156 (19200)	1 ea	Turret – Use with vehicle S/N 11270 and subsequent
Tubing, nonmetallic	4710-00-618-7405	8521830 (18876)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A1 TANK

2-4. TURRET AND COMPONENT REMOVAL.

NOTES

- Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- Normally, the M48 filter does not constitute a health hazard. However, in the event of a fire or significant damage, carbon may be released from the filter. The carbon contains Chromium VI, which requires respiratory protection and good work protection to prevent exceeding exposure limits established by Department of Defense (DOD) occupational safety and health standards or specialized standards to military unique equipment, systems, or operations (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazardous Materials/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

2-4. TURRET AND COMPONENT REMOVAL - Continued.

NOTES (cont.)

- Any water exposed to carbon from M48 filters must be treated as regulated waste. Chromium VI is a Resource, Conservation and Recovery Act (RCRA) regulated waste therefore the Copper, Silver, Chrome (ASC) carbon and ASC carbon contaminated materials must be disposed of in accordance with local, state, and federal regulations.
- Contact your local Hazardous Materials (HAZMAT) team for advice and assistance during the clean up process.
- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.
- All preliminary tasks must be performed before doing tasks listed in steps below.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-264-20-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-264-34-2-2.

d. Place drain pans under tank at drain valves to catch liquid, which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-264-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-264-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-264-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-264-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-264-20-1-5 and set aside for cleaning.

2-4. TURRET AND COMPONENT REMOVAL - Continued.

k. Remove Connector Assembly per TM 9-2350-264-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-264-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-264-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-264-20-1-5 (including step 3) and set aside for cleaning.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-264-20-1-5 and set aside for cleaning.

p. Remove Tube Assemblies (Duct Assembly To Left Sponson) per TM 9-2350-264-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-264-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-264-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-264-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-264-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-264-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-264-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-264-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-264-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-264-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-264-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-264-20-2-4 and set aside for cleaning.

2-4. TURRET AND COMPONENT REMOVAL - Continued.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-264-20-2-4 and set tube aside for cleaning.

ee. Remove Loader's Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

ff. Remove Gas Filters per TM 9-2350-264-20-2-4. Place in bag and tag bag with HAZMAT tag. Turn in In Accordance With (IAW) Chapter 8.

NOTE

Do steps gg and hh if you have tank S/N 11270 and subsequent. If you have tank S/N 00001 thru 11269 skip to step ii.

gg. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-264-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube Cap per TM 9-2350-264-20-2-4 and set aside for cleaning.

ii. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set tube aside for cleaning.

jj. Remove Commander's Distribution Tube per TM 9-2350-264-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A1 TANK

2-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC Check Valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

h. Wipe all external surfaces of Preformed Hose (Tube Reducer to Duct Assembly) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

i. Wipe all external surfaces of Hose (Distribution to Slipring Bent Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

j. Wipe all external surfaces of Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

k. Wipe all external surfaces of NBC Tube Assembly with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

2-5. CLEANING OF COMPONENTS AND TANK - Continued.

NOTE

Do step l if you have a Nylon Loader's Upper Distribution Tube. If you have a Stainless Steel Loader's Upper Distribution Tube skip to step m.

l. Wipe all external surfaces of Nylon Loader's Upper Distribution Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

m. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove Y-tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

n. Wipe all external surfaces of Loader's Lower Distribution Tube Air Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

o. Wipe all external surfaces of Loader's Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

p. Wipe all external surfaces of Gunner's Distribution Tube to Commander's Distribution Tube Air Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

q. Wipe all external surfaces of Gunner's Distribution Tube Cap with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

r. Wipe all external surfaces of Commander's Distribution Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

s. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

t. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

u. Place Outlet Air exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

2-5. CLEANING OF COMPONENTS AND TANK - Continued.

v. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

w. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

x. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

y. Place Tube Assemblies one at a time in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. If tube is to long to completely submerge then flip tube over and submerge other end in soapy water and plunge up and down. Remove from soapy water and submerge in other drum of water and rinse thoroughly. If tube is to long to completely submerge then plunge up and down to rinse the same as in soapy water. Use rags to remove excess water. Allow to air dry.

z. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

cc. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

2-5. CLEANING OF COMPONENTS AND TANK - Continued.

ee. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

NOTE

Do step ff if you have tank S/N 00001 thru 11269. If you have tank S/N 11270 and subsequent skip to step gg.

ff. Place Gunner's Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

gg. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

hh. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ii. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

jj. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

kk. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

ll. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

mm. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning in step ll until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A1 TANK

2-6. COMPONENT AND TURRET INSTALLATION.

a. Install new Commander's Distribution Tube per TM 9-2350-264-20-2-4.

b. Install new Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-264-20-2-4.

NOTE

Do step c if you have tank S/N 00001 thru 11269. If you have tank S/N 11270 and subsequent skip to steps d and e.

c. Install cleaned Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-264-20-2-4.

d. Install new Gunner's Distribution Tube Cap per TM 9-2350-264-20-2-4.

e. Install new Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-264-20-2-4.

f. Install new Gas Filters per TM 9-2350-264-20-2-4.

g. Install new Loader's Hose per TM 9-2350-264-20-2-4.

h. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-264-20-2-4.

i. Install new Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-264-20-2-4

NOTE

If a Nylon tube was removed do step j. If a Stainless Steel tube was removed skip to step k.

j. Install new Loader's Upper Distribution Tube per TM 9-2350-264-20-2-4.

k. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-264-20-2-4.

l. Install new Connector Assembly to Distribution Tube Air Hose per TM 9-2350-264-20-2-4.

m. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-264-20-2-4.

n. Install cleaned Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-264-20-2-4.

o. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-264-20-2-4.

p. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-264-20-2-4.

2-6. COMPONENT AND TURRET INSTALLATION - Continued.

q. Install new NBC Tube Assembly per TM 9-2350-264-34-1-2.

r. Install new Air Exhaust Manifold per TM 9-2350-264-20-1-5.

s. Install new Slipring Assembly per TM 9-2350-264-20-2-3.

t. Install new Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-264-20-1-5.

u. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-264-20-1-5.

v. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-264-20-1-5.

w. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-264-20-1-5.

x. Install new NBC Duct Assembly per TM 9-2350-264-34-1-2.

y. Install cleaned Tube Assemblies (Duct Assembly to Left Sponson) per TM 9-2350-264-20-1-5.

z. Install new Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-264-20-1-5 (including step 1).

aa. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-264-20-1-5.

bb. Install cleaned Holder Assembly per TM 9-2350-264-20-1-5.

cc. Install new Connector Assembly per TM 9-2350-264-20-1-5.

dd. Install cleaned Orifice Assembly Connector and Angle Bracket per TM 9-2350-264-20-1-5.

ee. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-264-20-1-5.

ff. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-264-20-1-5.

gg. Install new NBC Check Valve per TM 9-2350-264-20-1-5.

hh. Install new Gas-Particulate Filters per TM 9-2350-264-20-1-5.

ii. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-264-20-1-5.

jj. Install cleaned Turret per TM 9-2350-264-34-2-2.

kk. Perform system operation and leak test per TM 9-2350-264-20-1-5.

CHAPTER 3

CLEAN UP PROCEDURE B FOR M1A1 TANK (WITH M48A1 FILTERS)

Section I. INTRODUCTION

3-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 2 for Procedure A of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48A1 use this procedure for M1A1 tank. If filters installed were M48 go to Chapter 2 (Procedure A for M1A1 tank).

b. Items listed in tables 3-1 and 3-2 are for the clean up of one M1A1 tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-264-24P-1 and TM 9-2350-264-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B FOR M1A1 TANK

3-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B.

Table 3-1 shows materials and expendable supplies required to perform the clean up of one M1A1 tank using Procedure B. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 3-1. Materials and Expendable Supplies for Procedure B.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Adhesive		8040-00-142-9193	1 bx	
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	

3-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B - Continued.

Table 3-1. Materials and Expendable Supplies for Procedure B - continued.

NOMENCLATURE	SIZE	NSN	QTY/ UI	REMARKS
Detergent, general purpose		7930-00-282-9699	1 gl	
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet long
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B FOR M1A1 TANK

3-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B.

Table 3-2 shows the mandatory replacement parts required for the clean up of one M1A1 tank using this procedure. These parts are to be ordered through normal supply channels. Before ordering any parts you must check your vehicle Serial Number (S/N) to ensure you order the correct items (see Remarks column in table 3-2). These parts may be found in TM 9-2350-264-24P-1 and TM 9-2350-264-24P-2 Manuals.

Table 3-2. Mandatory Replacement Parts for Procedure B.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48A1)	4240-01-363-1311	5-19-7435 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Hull
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-01-374-5430	12387269-40 (19207)	10 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull

3-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B - Continued.

Table 3-2. Mandatory Replacement Parts for Procedure B - continued.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	1015-01-187-1045	12324516 (19207)	1 ea	Hull/Turret
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A1 TANK

3-4. TURRET AND COMPONENT REMOVAL.

NOTES

- The M48A1 Filter uses chromium free carbon. Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazmat/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.

- All preliminary tasks must be performed before doing tasks listed in steps below.

3-4. TURRET AND COMPONENT REMOVAL - Continued.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-264-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-264-34-2-2.

d. Place drain pan under tank at drain valves to catch liquid which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Then allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-264-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-264-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-264-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-264-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-264-20-1-5 and set aside for cleaning.

k. Remove Connector Assembly per TM 9-2350-264-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-264-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-264-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-264-20-1-5 (including step 3) and set aside for cleaning.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-264-20-1-5 and set aside for cleaning.

3-4. TURRET AND COMPONENT REMOVAL - Continued.

p. Remove Tube Assemblies (Duct Assembly To Left Sponson) per TM 9-2350-264-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-264-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-264-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-264-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-264-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-264-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-264-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-264-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-264-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-264-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-264-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-264-20-2-4 and set aside for cleaning.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-264-20-2-4 and set tube aside for cleaning.

3-4. TURRET AND COMPONENT REMOVAL - Continued.

ee. Remove Loader's Hose per TM 9-2350-264-20-2-4 and set aside for cleaning.

NOTE

Do steps ff and gg if you have tank S/N 11270 and subsequent. If you have tank S/N 00001 thru 11269 skip to step hh.

ff. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-264-20-2-4 and set aside for cleaning.

gg. Remove Gunner's Distribution Tube Cap per TM 9-2350-264-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-264-20-2-4 and set tube aside for cleaning.

ii. Remove Commander's Distribution Tube per TM 9-2350-264-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A1 TANK

3-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC check valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

h. Place Preformed Hose (Tube Reducer to Duct Assembly) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

i. Place Hose (Distribution to Slipring Bent Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

j. Place Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

3-5. CLEANING OF COMPONENTS AND TANK - Continued.

k. Place NBC Tube Assembly in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

l. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

m. Place Loader's Lower Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

n. Place Loader's Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

o. Place Gunner's Distribution Tube to Commander's Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

p. Place Gunner's Distribution Tube Cap in soapy water until completely submerged. Wash exterior of cap with rag. Plunge cap up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

q. Place Commander's Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

r. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

s. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

3-5. CLEANING OF COMPONENTS AND TANK - Continued.

t. Place Outlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

u. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

v. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

w. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

x. Place Tube Assemblies one at a time in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. If tube is to long to completely submerge then flip tube over and submerge other end in soapy water and plunge up and down. Remove from soapy water and submerge in other drum of water and rinse thoroughly. If tube is to long to completely submerge then plunge up and down to rinse the same as in soapy water. Use rags to remove excess water. Allow to air dry.

y. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Tie a piece of twine to rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

z. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

3-5. CLEANING OF COMPONENTS AND TANK - Continued.

cc. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash Y-tube with rag. Run twine through any holes of Y-tube and pull rag through all holes. Remove Y-tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ee. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

NOTE

Do step ff if you have tank S/N 00001 thru 11269. If you have tank S/N 11270 and subsequent skip to step gg.

ff. Place Gunner's Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

gg. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

hh. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ii. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

jj. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

kk. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

ll. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

mm. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning step ll until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A1 TANK

3-6. COMPONENT AND TURRET INSTALLATION.

a. Install cleaned Commander's Distribution Tube per TM 9-2350-264-20-2-4.

b. Install cleaned Gunner's Distribution Tube per TM 9-2350-264-20-2-4.

NOTE

Do step c if you have tank S/N 00001 thru 11269. If you have tank S/N 11270 and subsequent skip to steps d and e.

c. Install cleaned Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-264-20-2-4.

d. Install cleaned Gunner's Distribution Tube Cap per TM 9-2350-264-20-2-4.

e. Install cleaned Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-264-20-2-4.

f. Install cleaned Loader's Hose per TM 9-2350-264-20-2-4.

g. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-264-20-2-4.

h. Install cleaned Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-264-20-2-4

i. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-264-20-2-4.

j. Install cleaned Connector Assembly to Distribution Tube Air Hose per TM 9-2350-264-20-2-4.

k. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-264-20-2-4.

l. Install new Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-264-20-2-4.

m. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-264-20-2-4.

n. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-264-20-2-4.

o. Install new NBC Tube Assembly per TM 9-2350-264-34-1-2.

p. Install new Air Exhaust Manifold per TM 9-2350-264-20-1-5.

q. Install new Slipring Assembly per TM 9-2350-264-20-2-3.

3-6. COMPONENT AND TURRET INSTALLATION - Continued.

r. Install cleaned Hose (Distribution Duct to Slipring Bent Tube) per TM 9-2350-264-20-1-5.

s. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) per TM 9-2350-264-20-1-5.

t. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-264-20-1-5.

u. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-264-20-1-5.

v. Install cleaned NBC Duct Assembly per TM 9-2350-264-34-1-2.

w. Install cleaned Tube Assemblies (Duct Assembly to Left Sponson) per TM 9-2350-264-20-1-5.

x. Install cleaned Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-264-20-1-5 (including step 1).

y. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-264-20-1-5.

z. Install cleaned Holder Assembly per TM 9-2350-264-20-1-5.

aa. Install new Connector Assembly per TM 9-2350-264-20-1-5.

bb. Install cleaned Orifice Assembly Connector and Bracket per TM 9-2350-264-20-1-5.

cc. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-264-20-1-5.

dd. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-264-20-1-5.

ee. Install new NBC Check Valve per TM 9-2350-264-20-1-5.

ff. Install new Gas-Particulate Filters per TM 9-2350-264-20-1-5.

gg. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-264-20-1-5.

hh. Install cleaned Turret per TM 9-2350-264-34-2-2.

ii. Perform system operation and leak test per TM 9-2350-264-20-1-5.

CHAPTER 4

CLEAN UP PROCEDURE A FOR M1A2 TANK (WITH M48 FILTERS)

Section I. INTRODUCTION

4-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 5 for Procedure B of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48 use this procedure for M1A2 tank. If filters installed were M48A1 go to Chapter 5 (Procedure B for M1A2 tank).

b. Items listed in tables 4-1 and 4-2 are for the clean up of one M1A2 tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-288-24P-1 and TM 9-2350-288-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A FOR M1A2 TANK

4-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A.

Table 4-1 shows materials and expendable supplies required to perform the clean up of one M1A2 tank using Procedure A. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 4-1. Materials and Expendable Supplies for Procedure A.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	
Detergent, general purpose		7930-00-282-9699	1 gl	

4-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 4-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet long
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886

4-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 4-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tags		**TBD**	A/R	Obtain from Hazardous Materials (HAZMAT) team
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A FOR M1A2 TANK

4-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A.

Table 4-2 shows the mandatory replacement parts required for the clean up of one M1A2 tank using this procedure. These parts are to be ordered through normal supply channels. These parts may be found in TM 9-2350-288-24P-1 and TM 9-2350-288-24P-2 Manuals.

Table 4-2. Mandatory Replacement Parts for Procedure A.

NOMENCLATURE	NSN	PART NO/CAGE	QTY /UI	REMARKS
Boot, NBC duct	2510-01-201-0960	12324187 (19207)	1 ea	Hull
Cap, protective, dust	5340-01-369-1924	12931186 (19200)	1 ea	Turret
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48)	4240-01-161-3710	E5-19-7436 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	3 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	**See Remarks**	12283727-24 (19200)	A/R	Make from Hose NSN 4720-00-200-0367. Turret (10.25 inches required)
Hose, nonmetallic	**See Remarks**	12283727-25 (19200)	A/R	Make from Hose NSN 4720-00-200-0367. Turret (18 inches required)
Hose, nonmetallic	**See Remarks**	12283727-27 (19200)	A/R	Make from Hose NSN 4720-00-200-0367. Turret (2.50 inches required)
Hose, nonmetallic	**See Remarks**	12283727-28 (19200)	A/R	Make from Hose NSN 4720-00-200-0367. Turret (6 inches required)
Hose, nonmetallic	**See Remarks**	12301543-5 (19207)	A/R	Make from Hose NSN 4720-01-057-0550. Hull (100 inches required)
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Hull
Hose, nonmetallic	4720-01-201-1082	12324105 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-204-2603	12324169-2 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-201-4827	12324169-3 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-188-3191	12324460-1 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-188-7739	12324460-5 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-320-5775	12324460-10 (19207)	1 ea	Turret

4-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A - Continued.

Table 4-2. Mandatory Replacement Parts for Procedure A - continued.

NOMENCLATURE	NSN	PART NO/CAGE	QTY /UI	REMARKS
Hose, preformed	4720-01-201-7980	12324147 (19207)	1 ea	Hull
Hose, preformed	4720-01-356-8754	12549126 (19200)	1 ea	Turret
Hose, preformed	4720-01-364-1633	12931197 (19200)	1 ea	Turret
Hose, preformed	4720-01-419-4760	12436989 (19200)	1 ea	Turret
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-01-086-1123	MS51848-49 (96906)	4 ea	Turret
Lockwasher	5310-01-374-5430	12387269-40 (19207)	7 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1671	12387272-43 (19207)	2 ea	Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5325-00-935-3890	MS16624-4275 (96906)	1 ea	Hull/Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	3040-01-358-5646	12346224 (19207)	1 ea	Hull/Turret
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Tubing, nonmetallic	4710-01-389-3151	12325446-2 (19207)	1 ea	Turret
Tubing, nonmetallic	4710-01-317-2234	12346122 (19200)	1 ea	Turret
Tubing, nonmetallic	4710-01-363-6800	12931156 (19200)	1 ea	Turret
Tubing, nonmetallic	4710-00-618-7405	8521830 (18876)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A2 TANK

4-4. TURRET AND COMPONENT REMOVAL.

NOTES

- Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- Normally, the M48 filter does not constitute a health hazard. However, in the event of a fire or significant damage, carbon may be released from the filter. The carbon contains Chromium VI, which requires respiratory protection and good work protection to prevent exceeding exposure limits established by Department of Defense (DOD) occupational safety and health standards or specialized standards to military unique equipment, systems, or operations (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazardous Materials/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

4-4. TURRET AND COMPONENT REMOVAL - Continued.

NOTES (cont.)

- Any water exposed to carbon from M48 filters must be treated as regulated waste. Chromium VI is a Resource, Conservation and Recovery Act (RCRA) regulated waste therefore the Copper, Silver, Chrome (ASC) carbon and ASC carbon contaminated materials must be disposed of in accordance with local, state, and federal regulations.
- Contact your local Hazardous Materials (HAZMAT) team for advice and assistance during the clean up process.
- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.
- All preliminary tasks must be performed before doing tasks listed in steps below.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-288-20-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-288-34-2-2.

d. Place drain pans under tank at drain valves to catch liquid, which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-288-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-288-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-288-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-288-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-288-20-1-5 and set aside for cleaning.

4-4. TURRET AND COMPONENT REMOVAL - Continued.

k. Remove Connector Assembly per TM 9-2350-288-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-288-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-288-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-288-20-1-5 (including step 3) and set aside for cleaning.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-288-20-1-5 and set aside for cleaning.

p. Remove Hose (Duct Assembly To Left Sponson) per TM 9-2350-288-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-288-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-288-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-288-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-288-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-288-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-288-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-288-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-288-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-288-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-288-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

4-4. TURRET AND COMPONENT REMOVAL - Continued.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-288-20-2-4 and set tube aside for cleaning.

ee. Remove Loader's Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

ff. Remove Gas Filters per TM 9-2350-288-20-2-4. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

gg. Remove Gunner's Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube To Nonmetallic Tubing Hoses and Bent Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

ii. Remove Nonmetallic Tubing To Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

jj. Remove Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

kk. Remove Commander's Touch Temperature Tube, Hoses, And Valve per TM 9-2350-288-20-2-4 and set aside for cleaning.

ll. Remove Gunner's Touch Temperature Hose And Commander's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

mm. Remove Gunner's or Loader's Inlet Air Nonmetallic or Metallic Bent Tube per TM 9-2350-288-20-2-4 and set tube aside for cleaning.

nn. Remove Gunner's Distribution Tube Cap per TM 9-2350-288-20-2-4 and set aside for cleaning.

oo. Remove Commander's Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A2 TANK

4-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC Check Valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

h. Wipe all external surfaces of Preformed Hose (Tube Reducer to Duct Assembly) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

i. Wipe all external surfaces of Hose (Distribution to Slipring Bent Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

j. Wipe all external surfaces of Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

k. Wipe all external surfaces of NBC Tube Assembly with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

4-5. CLEANING OF COMPONENTS AND TANK - Continued.

l. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

m. Wipe all external surfaces of Loader's Lower Distribution Tube Air Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

n. Wipe all external surfaces of Loader's Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

o. Wipe all external surfaces of Gunner's Distribution Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

p. Wipe all external surfaces of Gunner's Nonmetallic Hoses and Bent Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

q. Wipe all external surfaces of Commander's and Gunner's Touch Temperature Adapters with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

r. Wipe all external surfaces of Commander's and Gunner's Touch Temperature Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

s. Wipe all external surfaces of Gunner's Distribution Tube Cap with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

t. Wipe all external surfaces of Commander's Distribution Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

u. Wipe all external surfaces of Nonmetallic Tubing (Nonmetallic Tubing To Gunner's Touch Temperature Adapter) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

v. Wipe all external surfaces of hose (Duct Assembly To left Sponson) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

w. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

4-5. CLEANING OF COMPONENTS AND TANK - Continued.

x. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

y. Place Outlet Air exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

z. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

cc. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ee. Place Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ff. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

gg. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

4-5. CLEANING OF COMPONENTS AND TANK - Continued.

hh. Place Commander's Touch Temperature Tube and valve in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and valve. Pull rag through all holes. Remove tube and valve from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ii. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

jj. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

kk. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ll. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

mm. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

nn. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

oo. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

pp. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning in step oo until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A2 TANK

4-6. COMPONENT AND TURRET INSTALLATION.

a. Install new Commander's Distribution Tube per TM 9-2350-288-20-2-4.

b. Install new Gunner's Distribution Tube Cap per TM 9-2350-288-20-2-4.

c. Install cleaned Gunner's or Loader's Inlet Air Nonmetallic or Metallic Bent Tube per TM 9-2350-288-20-2-4.

d. Cut one new piece of Hose (NSN 4720-00-200-0367) 6 inches $\pm$ 1/4 inch long. Install new Gunner's Touch Temperature Hose, And Commander's Touch Temperature Adapter per TM 9-2350-288-20-2-4.

e. Cut one piece of Hose (NSN 4720-00-200-0367) 10.25 inches (26.04 centimeters) $\pm$ .25 inch (.64 centimeter) long. Cut one piece of Hose (NSN 4720-00-200-0367) 18 inches (45.72 centimeters) $\pm$ .25 inch (.64 centimeter) long. Install cleaned Commander's Touch Temperature Tube, two new Hoses, And cleaned Valve per TM 9-2350-288-20-2-4.

f. Install cleaned Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4.

g. Cut two new pieces of Hose (NSN 4720-00-200-0367) 2.50 inches (6.35 centimeters) $\pm$ .25 inch (.64 centimeter) long. Install cleaned Gunner's Touch Temperature Tube, two new Hoses, And cleaned Valve per TM 9-2350-288-20-2-4.

h. Install new Nonmetallic Tubing To Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

i. Install cleaned Gunner's Distribution Tube To Nonmetallic Tubing Hoses and Bent Tube per TM 9-2350-288-20-2-4.

j. Install cleaned Gunner's Distribution Tube per TM 9-2350-288-20-2-4.

k. Install new Gas Filters per TM 9-2350-288-20-2-4.

l. Install new Loader's Hose per TM 9-2350-288-20-2-4.

m. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-288-20-2-4.

n. Install new Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-288-20-2-4

o. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-288-20-2-4.

4-6. COMPONENT AND TURRET INSTALLATION - Continued.

p. Install new Connector Assembly to Distribution Tube Air Hose per TM 9-2350-288-20-2-4.

q. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-288-20-2-4.

r. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-288-20-2-4.

s. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-288-20-2-4.

t. Install new NBC Tube Assembly per TM 9-2350-288-34-1-2.

u. Install new Air Exhaust Manifold per TM 9-2350-288-20-1-5.

v. Install new Slipring Assembly per TM 9-2350-288-20-2-3.

w. Install new Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-288-20-1-5.

x. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-288-20-1-5.

y. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-288-20-1-5.

z. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-288-20-1-5.

aa. Install new NBC Duct Assembly per TM 9-2350-288-34-1-2.

bb. Cut one piece of Hose (NSN 4720-01-057-0550) 100 inches $\pm$ 1/4 inch long. Install new Hose (Duct Assembly to Left Sponson) per TM 9-2350-288-20-1-5.

cc. Install new Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-288-20-1-5 (including step 1).

dd. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-288-20-1-5.

ee. Install cleaned Holder Assembly per TM 9-2350-288-20-1-5.

ff. Install new Connector Assembly per TM 9-2350-288-20-1-5.

gg. Install cleaned Orifice Assembly Connector and Angle Bracket per TM 9-2350-288-20-1-5.

hh. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-288-20-1-5.

4-6. COMPONENT AND TURRET INSTALLATION - Continued.

ii. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-288-20-1-5.

jj. Install new NBC Check Valve per TM 9-2350-288-20-1-5.

kk. Install new Gas-Particulate Filters per TM 9-2350-288-20-1-5.

ll. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-288-20-1-5.

mm. Install cleaned Turret per TM 9-2350-288-34-2-2.

nn. Perform system operation and leak test per TM 9-2350-288-20-1-5.

CHAPTER 5

CLEAN UP PROCEDURE B FOR M1A2 TANK (WITH M48A1 FILTERS)

Section I. INTRODUCTION

5-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 4 for Procedure A of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48A1 use this procedure for M1A2 tank. If filters installed were M48 go to Chapter 4 (Procedure A for M1A2 tank).

b. Items listed in tables 5-1 and 5-2 are for the clean up of one M1A2 tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-288-24P-1 and TM 9-2350-288-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B FOR M1A2 TANK

5-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B.

Table 5-1 shows materials and expendable supplies required to perform the clean up of one M1A2 tank using Procedure B. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 5-1. Materials and Expendable Supplies for Procedure B.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	
Detergent, general purpose		7930-00-282-9699	1 gl	

5-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B - Continued.

Table 5-1. Materials and Expendable Supplies for Procedure B - continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet long
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B FOR M1A2 TANK

5-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B.

Table 5-2 shows the mandatory replacement parts required for the clean up of one M1A2 tank using this procedure. These parts may be found in TM 9-2350-288-24P-1 and TM 9-2350-288-24P-2 Manuals.

Table 5-2. Mandatory Replacement Parts for Procedure B.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48A1)	4240-01-363-1311	5-19-7435 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Hull
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	4720-01-340-8911	12346137 (19207)	1 ea	Hull
Hose, nonmetallic	**See Remarks**	12301543-5 (19207)	A/R	Make from Hose NSN 4720-01-057-0550. Hull (100 inches required)
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-01-374-5430	12387269-40 (19207)	10 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret

5-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B - Continued.

Table 5-2. Mandatory Replacement Parts for Procedure B - continued.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5325-00-935-3890	MS16624-4275 (96906)	1 ea	Hull/Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	1015-01-187-1045	12324516 (19207)	1 ea	Hull/Turret
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A2 TANK

5-4. TURRET AND COMPONENT REMOVAL.

NOTES

- The M48A1 Filter uses chromium free carbon. Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazmat/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.

- All preliminary tasks must be performed before doing tasks listed in steps below.

5-4. TURRET AND COMPONENT REMOVAL - Continued.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-288-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-288-34-2-2.

d. Place drain pan under tank at drain valves to catch liquid which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Then allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-288-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-288-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-288-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-288-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-288-20-1-5 and set aside for cleaning.

k. Remove Connector Assembly per TM 9-2350-288-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-288-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-288-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-288-20-1-5 (including step 3) and set aside for cleaning.

5-4. TURRET AND COMPONENT REMOVAL - Continued.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-288-20-1-5 and set aside for cleaning.

p. Remove Hose (Duct Assembly To Left Sponson) per TM 9-2350-288-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-288-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-288-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-288-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-288-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-288-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-288-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-288-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-288-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-288-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-288-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-288-20-2-4 and set tube aside for cleaning.

ee. Remove Loader's Hose per TM 9-2350-288-20-2-4 and set aside for cleaning.

5-4. TURRET AND COMPONENT REMOVAL - Continued.

ff. Remove Gas Filters per TM 9-2350-288-20-2-4. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

gg. Remove Gunner's Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube To Nonmetallic Tubing Hoses and Bent Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

ii. Remove Nonmetallic Tubing To Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

jj. Remove Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

kk. Remove Commander's Touch Temperature Tube, Hoses, And Valve per TM 9-2350-288-20-2-4 and set aside for cleaning.

ll. Remove Gunner's Touch Temperature Hose And Commander's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

mm. Remove Gunner's or Loader's Inlet Air Nonmetallic or Metallic Bent Tube per TM 9-2350-288-20-2-4 and set tube aside for cleaning.

nn. Remove Gunner's Distribution Tube Cap per TM 9-2350-288-20-2-4 and set aside for cleaning.

oo. Remove Commander's Distribution Tube per TM 9-2350-288-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A2 TANK

5-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC check valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

h. Wipe all external surfaces of hose (Duct Assembly To left Sponson) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

i. Wipe all external surfaces of Nonmetallic Tubing (Nonmetallic Tubing To Gunner's Touch Temperature Adapter) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

j. Place NBC Tube Assembly in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

k. Place Preformed Hose (Tube Reducer to Duct Assembly) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

5-5. CLEANING OF COMPONENTS AND TANK - Continued.

l. Place Hose (Distribution to Slipring Bent Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry

m. Place Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

n. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

o. Place Loader's Lower Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

p. Place Loader's Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

q. Place Gunner's Distribution Tube to Commander's Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

r. Place Gunner's Distribution Tube Cap in soapy water until completely submerged. Wash exterior of cap with rag. Plunge cap up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

s. Place Commander's Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

t. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

u. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

5-5. CLEANING OF COMPONENTS AND TANK - Continued.

v. Place Outlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

w. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

x. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

y. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

z. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Tie a piece of twine to rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

cc. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Commander's Touch Temperature Tube and valve in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and valve. Pull rag through all holes. Remove tube and valve from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ee. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

5-5. CLEANING OF COMPONENTS AND TANK - Continued.

ff. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

gg. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove Y-tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

hh. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ii. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

jj. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

kk. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ll. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

mm. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

nn. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

oo. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning step nn until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A2 TANKS

5-6. COMPONENT AND TURRET INSTALLATION.

a. Install new Commander's Distribution Tube per TM 9-2350-288-20-2-4.

b. Install new Gunner's Distribution Tube Cap per TM 9-2350-288-20-2-4.

c. Install cleaned Gunner's or Loader's Inlet Air Nonmetallic or Metallic Bent Tube per TM 9-2350-288-20-2-4.

d. Install cleaned Gunner's Touch Temperature Hose, And Commander's Touch Temperature Adapter per TM 9-2350-288-20-2-4.

e. Install cleaned Commander's Touch Temperature Tube, Hoses, And Valve per TM 9-2350-288-20-2-4.

f. Install cleaned Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4.

g. Install cleaned Gunner's Touch Temperature Tube, Hoses, And Valve per TM 9-2350-288-20-2-4.

h. Install new Nonmetallic Tubing To Gunner's Touch Temperature Adapter per TM 9-2350-288-20-2-4 and set aside for cleaning.

i. Install cleaned Gunner's Distribution Tube To Nonmetallic Tubing Hoses and Bent Tube per TM 9-2350-288-20-2-4.

j. Install cleaned Gunner's Distribution Tube per TM 9-2350-288-20-2-4.

k. Install new Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-288-20-2-4.

l. Install new Gas Filters per TM 9-2350-288-20-2-4.

m. Install new Loader's Hose per TM 9-2350-288-20-2-4.

n. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-288-20-2-4.

o. Install new Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-288-20-2-4

p. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-288-20-2-4.

5-6. COMPONENT AND TURRET INSTALLATION - Continued.

q. Install new Connector Assembly to Distribution Tube Air Hose per TM 9-2350-288-20-2-4.

r. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-288-20-2-4.

s. Install new Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-288-20-2-4.

t. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-288-20-2-4.

u. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-288-20-2-4.

v. Install new NBC Tube Assembly per TM 9-2350-288-34-1-2.

w. Install new Air Exhaust Manifold per TM 9-2350-288-20-1-5.

x. Install new Slipring Assembly per TM 9-2350-288-20-2-3.

y. Install new Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-288-20-1-5.

z. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-288-20-1-5.

aa. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-288-20-1-5.

bb. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-288-20-1-5.

cc. Install new NBC Duct Assembly per TM 9-2350-288-34-1-2.

dd. Cut one piece of Hose (NSN 4720-01-057-0550) 100 inches $\pm$ 1/4 inch long. Install new Hose (Duct Assembly to Left Sponson) per TM 9-2350-288-20-1-5.

ee. Install new Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-288-20-1-5 (including step 1).

5-6. COMPONENT AND TURRET INSTALLATION - Continued.

ff. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-288-20-1-5.

gg. Install cleaned Holder Assembly per TM 9-2350-288-20-1-5.

hh. Install new Connector Assembly per TM 9-2350-288-20-1-5.

ii. Install cleaned Orifice Assembly Connector and Bracket per TM 9-2350-288-20-1-5.

jj. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-288-20-1-5.

kk. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-288-20-1-5.

ll. Install new NBC Check Valve per TM 9-2350-288-20-1-5.

mm. Install new Gas-Particulate Filters per TM 9-2350-288-20-1-5.

nn. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-288-20-1-5.

oo. Install cleaned Turret per TM 9-2350-288-34-2-2.

pp. Perform system operation and leak test per TM 9-2350-288-20-1-5.

CHAPTER 6

CLEAN UP PROCEDURE A FOR M1A2 SEP TANK (WITH M48 FILTERS)

Section I. INTRODUCTION

6-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 7 for Procedure B of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48 use this procedure for M1A2 SEP tank. If filters installed were M48A1 go to Chapter 7 (Procedure B for M1A2 SEP tank).

b. Items listed in tables 6-1 and 6-2 are for the clean up of one M1A2 SEP tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-388-24P-1 and TM 9-2350-388-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A FOR M1A2 SEP TANK

6-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A.

Table 6-1 shows materials and expendable supplies required to perform the clean up of one M1A2 SEP tank using Procedure A. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 6-1. Materials and Expendable Supplies for Procedure A.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	
Detergent, general purpose		7930-00-282-9699	1 gl	

6-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 6-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet long
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886

6-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE A - Continued.

Table 6-1. Materials and Expendable Supplies for Procedure A – continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tags		**TBD**	A/R	Obtain from Hazardous Materials (HAZMAT) team
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A FOR M1A2 SEP TANK

6-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A.

Table 6-2 shows the mandatory replacement parts required for the clean up of one M1A2 SEP tank using this procedure. These parts are to be ordered through normal supply channels. These parts may be found in TM 9-2350-388-24P-1 and TM 9-2350-388-24P-2 Manuals.

Table 6-2. Mandatory Replacement Parts for Procedure A.

NOMENCLATURE	NSN	PART NO/CAGE	QTY/ UI	REMARKS
Boot, NBC duct	2510-01-201-0960	12324187 (19207)	1 ea	Hull
Cap, protective, dust	5340-01-369-1924	12931186 (19200)	1 ea	Turret
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48)	4240-01-161-3710	E5-19-7436 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	3 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	**See Remarks**	12301543-5 (19207)	1 ea	Make from Hose NSN 4720-01-057-0550. Hull
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Turret
Hose, nonmetallic	4720-01-201-1082	12324105 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-204-2603	12324169-2 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-201-4827	12324169-3 (19207)	1 ea	Hull
Hose, nonmetallic	4720-01-188-3191	12324460-1 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-188-7739	12324460-5 (19207)	1 ea	Turret
Hose, nonmetallic	4720-01-320-5775	12324460-10 (19207)	1 ea	Turret
Hose, preformed	4720-01-201-7980	12324147 (19207)	1 ea	Hull
Hose, preformed	4720-01-356-8754	12549126 (19200)	1 ea	Turret
Hose, preformed	4720-01-364-1633	12931197 (19200)	2 ea	Turret
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)

6-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE A - Continued.

Table 6-2. Mandatory Replacement Parts for Procedure A - continued.

NOMENCLATURE	NSN	PART NO/CAGE	QTY/ UI	REMARKS
Lockwasher	5310-01-086-1123	MS51848-49 (96906)	4 ea	Turret
Lockwasher	5310-01-374-5430	12387269-40 (19207)	7 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1671	12387272-43 (19207)	2 ea	Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Ring, retaining	5325-00-935-3890	MS16624-4275 (96906)	2 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	3040-01-358-5646	12346224 (19207)	1 ea	Hull/Turret
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Tubing, nonmetallic	4710-01-389-3151	12325446-2 (19207)	1 ea	Turret
Tubing, nonmetallic	4710-01-317-2234	12346122 (19200)	1 ea	Turret
Tubing, nonmetallic	4710-01-363-6800	12931156 (19200)	1 ea	Turret
Tubing, nonmetallic	4710-00-618-7405	8521830 (18876)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A2 SEP TANK

6-4. TURRET AND COMPONENT REMOVAL.

NOTES

- Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- Normally, the M48 filter does not constitute a health hazard. However, in the event of a fire or significant damage, carbon may be released from the filter. The carbon contains Chromium VI, which requires respiratory protection and good work protection to prevent exceeding exposure limits established by Department of Defense (DOD) occupational safety and health standards or specialized standards to military unique equipment, systems, or operations (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazardous Materials/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

6-4. TURRET AND COMPONENT REMOVAL - Continued.

NOTES (cont.)

- Any water exposed to carbon from M48 filters must be treated as regulated waste. Chromium VI is a Resource, Conservation and Recovery Act (RCRA) regulated waste therefore the Copper, Silver, Chrome (ASC) carbon and ASC carbon contaminated materials must be disposed of in accordance with local, state, and federal regulations.
- Contact your local Hazardous Materials (HAZMAT) team for advice and assistance during the clean up process.
- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.
- All preliminary tasks must be performed before doing tasks listed in steps below.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-388-20-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-388-34-2-2.

d. Place drain pans under tank at drain valves to catch liquid, which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-388-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-388-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-388-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-388-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-388-20-1-5 and set aside for cleaning.

6-4. TURRET AND COMPONENT REMOVAL - Continued.

k. Remove Connector Assembly per TM 9-2350-388-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-388-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-388-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-388-20-1-5 (including step 3) and set aside for cleaning.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-388-20-1-5 and set aside for cleaning.

p. Remove Tube Assemblies (Duct Assembly To Left Sponson) per TM 9-2350-388-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-388-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-388-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-388-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-388-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-388-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-388-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-388-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-388-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-388-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-388-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-388-20-2-4 and set aside for cleaning.

6-4. TURRET AND COMPONENT REMOVAL - Continued.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-388-20-2-4 and set tube aside for cleaning.

ee. Remove Loader's Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

ff. Remove Gas Filters per TM 9-2350-388-20-2-4. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

gg. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-388-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube Cap per TM 9-2350-388-20-2-4 and set aside for cleaning.

ii. Remove Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

jj. Remove Commander's Distribution Tube per TM 9-2350-388-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A2 SEP TANK

6-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC Check Valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

h. Wipe all external surfaces of Preformed Hose (Tube Reducer to Duct Assembly) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

i. Wipe all external surfaces of Hose (Distribution to Slipring Bent Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

j. Wipe all external surfaces of Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

k. Wipe all external surfaces of NBC Tube Assembly with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

6-5. CLEANING OF COMPONENTS AND TANK - Continued.

l. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove Y-tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

m. Wipe all external surfaces of Loader's Lower Distribution Tube Air Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

n. Wipe all external surfaces of Loader's Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

o. Wipe all external surfaces of Gunner's Distribution Tube to Commander's Distribution Tube Air Hose with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

p. Wipe all external surfaces of Gunner's Distribution Tube Cap with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

q. Wipe all external surfaces of Commander's Distribution Tube with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

r. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

s. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

t. Place Outlet Air exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

u. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

v. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

6-5. CLEANING OF COMPONENTS AND TANK - Continued.

w. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

x. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

y. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

z. Place Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

cc. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ee. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ff. Wipe all external surfaces of hose (Duct Assembly To left Sponson) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

6-5. CLEANING OF COMPONENTS AND TANK - Continued.

gg. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

hh. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

ii. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

jj. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

kk. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning in step jj until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A2 SEP TANK

6-6. COMPONENT AND TURRET INSTALLATION.

a. Install new Commander's Distribution Tube per TM 9-2350-388-20-2-4.

b. Install new Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-388-20-2-4.

c. Install new Gunner's Distribution Tube Cap per TM 9-2350-388-20-2-4.

d. Install new Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-388-20-2-4.

e. Install new Gas Filters per TM 9-2350-388-20-2-4.

f. Install new Loader's Hose per TM 9-2350-388-20-2-4.

g. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-388-20-2-4.

h. Install new Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-388-20-2-4

i. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-388-20-2-4.

j. Install new Connector Assembly to Distribution Tube Air Hose per TM 9-2350-388-20-2-4.

k. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-388-20-2-4.

l. Install new Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-388-20-2-4.

m. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-388-20-2-4.

n. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-388-20-2-4.

o. Install new NBC Tube Assembly per TM 9-2350-388-34-1-2.

p. Install new Air Exhaust Manifold per TM 9-2350-388-20-1-5.

q. Install new Slipring Assembly per TM 9-2350-388-20-2-3.

r. Install new Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-388-20-1-5.

s. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-388-20-1-5.

6-6. COMPONENT AND TURRET INSTALLATION - Continued.

t. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-388-20-1-5.

u. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-388-20-1-5.

v. Install new NBC Duct Assembly per TM 9-2350-388-34-1-2.

w. Cut one piece of Hose (NSN 4720-01-057-0550) 100 inches $\pm$ 1/4 inch long. Install new Hose (Duct Assembly to Left Sponson) per TM 9-2350-388-20-1-5.

x. Install new Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-388-20-1-5 (including step 1).

y. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-388-20-1-5.

z. Install cleaned Holder Assembly per TM 9-2350-388-20-1-5.

aa. Install new Connector Assembly per TM 9-2350-388-20-1-5.

bb. Install cleaned Orifice Assembly Connector and Angle Bracket per TM 9-2350-388-20-1-5.

cc. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-388-20-1-5.

dd. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-388-20-1-5.

ee. Install new NBC Check Valve per TM 9-2350-388-20-1-5.

ff. Install new Gas-Particulate Filters per TM 9-2350-388-20-1-5.

gg. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-388-20-1-5.

hh. Install cleaned Turret per TM 9-2350-388-34-2-2.

ii. Perform system operation and leak test per TM 9-2350-388-20-1-5.

CHAPTER 7

CLEAN UP PROCEDURE B FOR M1A2 SEP TANK (WITH M48A1 FILTERS)

Section I. INTRODUCTION

7-1. INTRODUCTION.

a. The purpose of this clean up procedure is to remove the carbon from the Abrams series tanks and clean equipment that may have been exposed to carbon. Once the carbon has been removed and the tank and equipment cleaned as indicated in this procedure or Chapter 6 for Procedure A of this bulletin, they are safe to use again.

NOTE

Check the data plate to determine which configuration of Gas-Particulate (NBC) Filters were installed. If filters installed were M48A1 use this procedure for M1A2 SEP tank. If filters installed were M48 go to Chapter 6 (Procedure A for M1A2 SEP tank).

b. Items listed in tables 7-1 and 7-2 are for the clean up of one M1A2 SEP tank. If it becomes necessary to remove additional components not shown in this procedure, more parts and materials may be required. Those additional items can be found in TM 9-2350-388-24P-1 and TM 9-2350-388-24P-2 and should be ordered through normal supply channels.

Section II. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B FOR M1A2 SEP TANK

7-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B.

Table 7-1 shows materials and expendable supplies required to perform the clean up of one M1A2 SEP tank using Procedure B. These items are to be ordered through normal supply channels, except as noted in Remarks column.

Table 7-1. Materials and Expendable Supplies for Procedure B.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Bags, plastic	6 x 6	8105-00-837-7754	A/R	
Bags, plastic	24 x 36	8105-01-268-0622	A/R	
Chalk		7510-00-223-6701	1 gr	
Compound, sealing		8030-01-025-1692	1 bt	
Coveralls, disposable	X-large	8415-00-601-0801	A/R	
Coveralls, disposable	Large	8415-00-601-0797	A/R	
Coveralls, disposable	Medium	8415-00-601-0794	A/R	
Coveralls, disposable	Small	8415-00-601-0793	A/R	
Detergent, general purpose		7930-00-282-9699	1 gl	

7-2. MATERIALS AND EXPENDABLE SUPPLIES FOR PROCEDURE B - Continued.

Table 7-1. Materials and Expendable Supplies for Procedure B - continued.

NOMENCLATURE	SIZE	NSN	QTY /UI	REMARKS
Drum, shipping and storage	55 Gallon	8110-00-030-7780	3 ea	With removable cover and locking ring.
Electrode, welding		3439-00-287-7088	1 lb	
Footwear covers, chemical	Small	8430-01-118-8172	A/R	
Footwear covers, chemical	Large	8430-01-021-5978	A/R	
Gloves, chemical		8415-00-641-4600	A/R	
Goggles, industrial		4240-00-052-3776	A/R	
Inspection kit, penetrant		6850-00-145-0255	1 kt	
Lubricant, solid film		9150-00-754-0064	1 cn	
Lumber, softwood		5510-00-220-6194	A/R	May be reused
Oil, lubricating, general		9150-00-231-2361	1 qt	
Oil, lubricating, general		9150-00-231-6689	1 qt	
Pail, utility	3 Gallon	7240-00-274-3875	2 ea	
Paper, writing		7530-00-285-5836	1 pg	
Pencil		7510-00-189-7881	1 dz	
Plug		4730-00-752-9175	1 ea	
Rags, wiping		7920-00-205-1711	1 be	
Respirator		**TBD**	A/R	**With HEPA or Class 100 Filter Cartridges**
Rope	1/2 in. dia.	4020-00-238-7732	1 cl	3 each, 40 feet feet
Shop vac, wet/dry with HEPA filter		**TBD**	1 ea	Manufacturers: Nilfisk Advance, Phone 1-610-647-6240 or Euro-Clean, Phone 1-800-545-HEPA or Lab Safety, Phone 1-800-356-2501 or Vallen Safety, Phone 1-800-372-3389 or Eureka, Phone 1-800-282-2886
Solvent, dry cleaning		6850-00-285-8011	1 dr	Approximately 1 gallon required
Strap, electrical tiedown		5975-00-345-8055	5 ft	
Tags, marker		9905-00-537-8954	1 bd	
Tape, antiseizing		8030-00-889-3534	1 ea	
Tape, pressure sensitive		7510-00-473-9513	1 ro	
Twine	20 ply	4020-00-291-5902	1 lb	

Section III. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B FOR M1A2 SEP TANK

7-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B.

Table 7-2 shows the mandatory replacement parts required for the clean up of one M1A1 SEP tank using this procedure. These parts may be found in TM 9-2350-388-24P-1 and TM 9-2350-388-24P-2 Manuals.

Table 7-2. Mandatory Replacement Parts for Procedure B.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Coupling half, quick disconnect	4730-01-138-7152	C5-19-1900-1 (81361)	4 ea	Hull/Turret
Filter, Gas-Particulate (M48A1)	4240-01-363-1311	5-19-7435 (81361)	2 ea	Hull
Filter, gas	4240-01-828-3952	D5-19-2350 (81361)	2 ea	Turret
Gasket	5330-01-184-6502	12324087 (19207)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2760	C5-19-916-1 (81361)	4 ea	Hull/Turret
Hose, air breathing	4720-00-829-2761	C5-19-916-4 (81361)	1 ea	Turret
Hose, air duct	4720-01-187-9619	12337671 (19207)	4 ea	Hull/Turret
Hose, nonmetallic	4720-01-073-9836	12284127-3 (19200)	1 ea	Hull
Hose, nonmetallic	**See Remarks**	12301543-5 (19207)	A/R	Make from Hose NSN 4720-01-057-0550. Hull (100 inches required)
Lockwasher	5310-00-576-5752	MS35333-39 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-595-7237	MS35333-42 (96906)	1 hd	Hull/Turret (8 ea required)
Lockwasher	5310-00-543-5933	MS35333-73 (96906)	1 hd	Hull (4 ea required)
Lockwasher	5310-00-543-2740	MS35333-74 (96906)	1 hd	Turret (3 ea required)
Lockwasher	5310-00-261-7162	MS35336-23 (96906)	12 ea	Hull/Turret
Lockwasher	5310-00-929-6395	MS35338-136 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-00-933-8120	MS35338-138 (96906)	1 hd	Turret (2 ea required)
Lockwasher	5310-01-374-5430	12387269-40 (19207)	10 ea	Hull/Turret
Lockwasher	5310-01-376-3508	12387272-42 (19207)	16 ea	Hull/Turret
Lockwasher	5310-01-380-1693	12387272-44 (19207)	14 ea	Turret
Manifold, air exhaust	2990-01-201-8050	12324116 (19207)	1 ea	Hull
Nut, self-locking	5310-00-059-9265	MS21046C4 (96906)	1 hd	Hull (2 ea required)
Nut, self-locking	5310-01-202-6869	NAS1805-6 (80205)	1 hd	Hull (3 ea required)
Nut, self-locking	5310-01-231-2220	NAS1805-8 (80205)	5 ea	Hull
Nut, self-locking	5310-01-201-4828	12273186-07 (19207)	3 ea	Hull
Packing, preformed	5330-00-166-8422	M83248/1-224 (81349)	3 ea	Turret
Packing, preformed	5330-00-165-1948	M83248/1-230 (81349)	2 ea	Hull
Packing, preformed	5330-00-020-0203	M83248/1-904 (81349)	6 ea	Hull/Turret
Packing, preformed	5330-00-020-0186	M83248/1-906 (81349)	6 ea	Hull
Packing, preformed	5330-00-020-0105	M83248/1-908 (81349)	5 ea	Hull
Packing, preformed	5330-00-165-4565	M83248/1-916 (81349)	4 ea	Turret

7-3. MANDATORY REPLACEMENT PARTS FOR PROCEDURE B - Continued.

Table 7-2. Mandatory Replacement Parts for Procedure B - continued.

NOMENCLATURE	NSN	PART NO./CAGE	QTY /UI	REMARKS
Packing, preformed	5330-00-165-1978	M83248/1-924 (81349)	1 ea	Hull
Packing, preformed	5330-00-440-4948	MS9068-238 (96906)	2 ea	Hull (optional with P/N AS3582-238 (81343))
Plug, machine thread	5365-01-017-2652	MS51840-30 (96906)	2 ea	Turret
Ring, retaining	5365-00-514-0393	MS16624-4087 (96906)	4 ea	Hull/Turret
Sleeve, compression	4730-01-188-7545	12337003 (19207)	2 ea	Hull
Slip ring assembly	1015-01-187-1045	12324516 (19207)	1 ea	Hull/Turret
Tube assembly, metal	4710-01-444-3668	12345278 (19207)	1 ea	Hull
Valve, check	4820-01-221-5864	12324456-1 (19200)	1 ea	Turret
Valve, check	4820-01-197-4744	7D2R-200000 (81833)	1 ea	Hull (optional P/N 12324456-3 (19200))
Wye, quick disconnect	4730-01-190-8413	12337663 (19207)	4 ea	Hull/Turret

Section IV. COMPONENT REMOVAL FOR M1A2 SEP TANK

7-4. TURRET AND COMPONENT REMOVAL.

NOTES

- The M48A1 Filter uses chromium free carbon. Basic safety precautions are mandatory during clean up to include respiratory protection, to prevent breathing the carbon, as well as skin and eye protection to prevent skin contact. Wear disposable coveralls, chemical footwear covers, respirator, industrial goggles, and chemical gloves while performing these procedures.

- Personnel required to wear a respirator must be fit tested with the respirator model and size they are to use, and must be properly trained in the use and care (AR 40-5, AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, and 29 CFR 1910.1200).

- An Industrial Hygienist should collect air samples for worker exposure to hexavalent chromium during cleanup procedure so that there is documentation of potential worker exposure. The Industrial Hygienist should also observe workers during the clean up process to document the appropriate selection and use of respiratory protection equipment (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- It is the responsibility of the local Industrial Hygienist to monitor the Oxygen content of the atmosphere within and around the workplace prior to, during, and after the cleanup operations. The mixture of Carbon and Water may react to deplete the Oxygen in the air (AR 11-34, TB MED 502/DLAM 1000.2, 29 CFR 1910.134, 29 CFR 1910.1200, and Material Safety Data Sheet).

- To prevent the dispersion of potential hexavalent chromium contamination, consult the local Industrial Hygienist/Preventive Medicine Office or Hazmat/Environmental Office for instructions on collecting of crew clothing and or other potentially contaminated equipment so it may be properly decontaminated and disposed.

- Fans or other types of mechanical air circulation should not be used in or near the tank during the cleanup process to prevent potential redistribution of the charcoal containing hexavalent chromium.

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.

- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.

- All preliminary tasks must be performed before doing tasks listed in steps below.

7-4. TURRET AND COMPONENT REMOVAL - Continued.

NOTES (cont.)

- The first step after the fire has been put out is to limit the spread of carbon outside the tank. Do not use water; other than as prescribed in these clean up instructions, to clean the tank or equipment. There should be no standing water left inside the tank after clean up.
- Follow all safety procedures and warnings in the referenced Technical Manuals and this Technical Bulletin.
- All preliminary tasks must be performed before doing tasks listed in steps below.

a. Move tank to hard stand in bay capable of removing turret. Maintain a 10-foot (3.05-meter) safety distance around work area during clean up operations.

b. Determine if individual hoses, filters, masks and vests were used during or prior to incident. If in use, collect individual hoses, filters, masks and vests and bag the same as M48 filters per TM 9-2350-388-20-1-5. If items were not in use prior to or at time of incident return as serviceable.

c. Remove Turret per TM 9-2350-388-34-2-2.

d. Place drain pan under tank at drain valves to catch liquid which may escape through valves.

NOTE

All components removed for preliminary procedures or for cleaning access shall be wiped clean with well rung out soapy rag and then with well rung out clean wet rag. Then allowed to air dry.

e. Remove any LRU's or components necessary to gain access for cleaning. Using HEPA vacuum, remove all loose dry material from turret, driver's compartment and hull turret basket cavity. Remove any caked on material or dirt by scraping and vacuuming. Vacuum all liquids from driver's compartment and hull floor.

f. Remove Slipring Assembly per TM 9-2350-388-20-2-3 and set aside for cleaning.

g. Remove Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-388-20-1-5 and set aside for cleaning.

h. Remove NBC Check Valve per TM 9-2350-388-20-1-5 and set aside for cleaning.

i. Remove Orifice Assembly Connector and Angle Bracket per TM 9-2350-388-20-1-5 and set aside for cleaning.

j. Remove Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice Connector Assembly) per TM 9-2350-388-20-1-5 and set aside for cleaning.

7-4. TURRET AND COMPONENT REMOVAL - Continued.

k. Remove Connector Assembly per TM 9-2350-388-20-1-5 and set aside for cleaning.

l. Remove Holder Assembly per TM 9-2350-388-20-1-5 and set aside for cleaning.

m. Remove Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-388-20-1-5 and set aside for cleaning.

n. Remove Preformed Hose (Tube Reducer To Duct Assembly) per TM 9-2350-388-20-1-5 (including step 3) and set aside for cleaning.

o. Remove Hose (Distribution Duct To Slipring Bent Tube) per TM 9-2350-388-20-1-5 and set aside for cleaning.

p. Remove Hose (Duct Assembly To Left Sponson) per TM 9-2350-388-20-1-5 and set aside for cleaning.

q. Remove NBC Duct Assembly per TM 9-2350-388-34-1-2 and set aside for cleaning.

r. Remove Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-388-20-1-5 and set aside for cleaning.

s. Remove Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-388-20-1-5 and set aside for cleaning.

t. Remove Tube Assembly And Hose Assembly (Air Exhaust Manifold To Air Inlet Tube) per TM 9-2350-388-20-1-5 and set aside for cleaning.

u. Remove Air Exhaust Manifold per TM 9-2350-388-20-1-5 and set aside for cleaning.

v. Remove NBC Tube Assembly per TM 9-2350-388-34-1-2 and set aside for cleaning.

w. Remove Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-388-20-2-4 and set aside for cleaning.

x. Remove Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-388-20-2-4 and set aside for cleaning.

y. Remove Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-388-20-2-4 and set aside for cleaning.

z. Remove Backup NBC System Y-tube and Check Valve per TM 9-2350-388-20-2-4 and set aside for cleaning.

aa. Remove Connector Assembly to Distribution Tube Air Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

7-4. TURRET AND COMPONENT REMOVAL - Continued.

bb. Remove Loader's Upper Distribution Tube per TM 9-2350-388-20-2-4 and set aside for cleaning.

cc. Remove Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

dd. Remove Loader's Lower Distribution Tube per TM 9-2350-388-20-2-4 and set tube aside for cleaning.

ee. Remove Loader's Hose per TM 9-2350-388-20-2-4 and set aside for cleaning.

ff. Remove Gas Filters per TM 9-2350-388-20-2-4. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

gg. Remove Gunner's Distribution Tube To Nonmetallic Tubing Hoses and Bent Tube per TM 9-2350-388-20-2-4 and set aside for cleaning.

hh. Remove Gunner's Distribution Tube Cap per TM 9-2350-388-20-2-4 and set aside for cleaning.

ii. Remove Commander's Distribution Tube per TM 9-2350-388-20-2-4 and set aside for cleaning.

Section V. CLEANING OF COMPONENTS AND M1A2 SEP TANK

7-5. CLEANING OF COMPONENTS AND TANK.

a. Remove retaining rings and lids from two 55-gallon (208.18 liter) drums. Place approximately 3/4 gallon (2.84 liters) of soap in one drum and fill with warm water to approximately 8 inches (20.32 centimeters) from top of drum. Fill the other drum with warm water to approximately 8 inches (20.32 centimeters) from top of drum.

b. Clean air passages in slipring with clean water. Fine clean exterior surfaces of slipring with soapy water and rag. Rinse exterior surfaces with clean water and well-rung out rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

c. Wipe all external surfaces of two NBC check valves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

d. Wipe all external surfaces of four Air Duct Hoses and Quick-Disconnect Coupling Halves with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

e. Wipe all external surfaces of four Connector Assemblies with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

f. Wipe all external surfaces of four Air Duct Hoses with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

g. Wipe all external surfaces of Air Exhaust Manifold with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

h. Wipe all external surfaces of hose (Duct Assembly To left Sponson) with damp rag. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with HAZMAT tag. Turn in IAW Chapter 8.

i. Place NBC Tube Assembly in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry. Place in bag and tag bag with tag. Turn in IAW Chapter 8.

j. Place Preformed Hose (Tube Reducer to Duct Assembly) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

7-5. CLEANING OF COMPONENTS AND TANK - Continued.

k. Place Hose (Distribution to Slipring Bent Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

l. Place Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

m. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

n. Place Loader's Lower Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

o. Place Loader's Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

p. Place Gunner's Distribution Tube to Commander's Distribution Tube Air Hose in soapy water until completely submerged. Wash exterior of hose with rag. Plunge hose up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

q. Place Gunner's Distribution Tube Cap in soapy water until completely submerged. Wash exterior of cap with rag. Plunge cap up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

r. Place Commander's Distribution Tube in soapy water until completely submerged. Wash exterior of tube with rag. Plunge tube up and down in water to flush interior. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

s. Place Inlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Tie a piece of twine to rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

t. Place Rigid Connecting Links in soapy water until completely submerged. Wash links with rag. Remove links from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

7-5. CLEANING OF COMPONENTS AND TANK - Continued.

u. Place Outlet Air Exhaust Manifold in soapy water until completely submerged. Wash manifold with rag. Run twine through any holes of manifold and pull rag through all holes. Remove manifold from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

v. Place Air Exhaust Manifold Mounting Support in soapy water until completely submerged. Wash support with rag. Run twine through any holes of support and pull rag through all holes. Remove support from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

w. Place Driver's, Gunner's, Loader's and Commander's Orifice and Bracket Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

x. Place Driver's, Gunner's, Loader's and Commander's Holder Assemblies one at a time in soapy water until completely submerged. Wash with rag. Remove from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

y. Place NBC Duct Assembly in soapy water until completely submerged. Wash duct with rag. Tie a piece of twine to rag. Run twine through any holes of duct and pull rag through all holes. Remove duct from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

z. Place Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

aa. Place Tube Assembly (Air Exhaust Manifold To Air Inlet Tube) in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

bb. Place Backup NBC System Y-tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

cc. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

dd. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

7-5. CLEANING OF COMPONENTS AND TANK - Continued.

ee. Place Loader's Upper Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove Y-tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ff. Place Loader's Lower Distribution Tube in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

gg. Place Driver's, Gunner's and Loader's Bent Tubes one at a time in soapy water until completely submerged. Wash tube with rag. Run twine through any holes of tube and pull rag through all holes. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

hh. Place Tube Reducer in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

ii. Place Gas Filter bracket in soapy water until completely submerged. Wash tube with rag. Remove tube from soapy water and submerge in other drum of water and rinse thoroughly. Use rags to remove excess water. Allow to air dry.

jj. Place approximately 3 caps full of soap in one 3-gallon (11.36-liter) pail and fill with approximately 2 gallons (7.57 liters) of warm water. Fill the other pail with approximately 2 gallons (7.57 liters) of warm water.

kk. Fine clean all mounting hardware which is to be reused in pail of soapy water and well-rung out rags. Rinse in pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

ll. Fine clean all exposed surfaces of turret, driver's compartment, and hull turret basket cavity with pail of soapy water and well-rung out rags. Rinse with pail of clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

mm. Visually inspect the turret, driver's compartment, and hull turret basket cavity to ensure all grease, oil, fuel, dirt, and debris have been removed. If any of these are present repeat cleaning step ll until clean. Repeat inspection.

Section VI. COMPONENT INSTALLATION FOR M1A2 SEP TANK

7-6. COMPONENT AND TURRET INSTALLATION.

a. Install cleaned Commander's Distribution Tube per TM 9-2350-388-20-2-4.

b. Install cleaned Gunner's Distribution Tube to Commander's Distribution Tube Air Hose per TM 9-2350-388-20-2-4.

c. Install cleaned Gunner's Distribution Tube Cap per TM 9-2350-388-20-2-4.

d. Install cleaned Gunner's Distribution Tube to Commander's Distribution Tube Air Hoses and Adapter per TM 9-2350-388-20-2-4.

e. Install cleaned Loader's Hose per TM 9-2350-388-20-2-4.

f. Install cleaned Loader's Lower Distribution Tube per TM 9-2350-388-20-2-4.

g. Install cleaned Loader's Lower Distribution Tube to Upper Distribution Tube Air Hose per TM 9-2350-388-20-2-4

h. Install cleaned Loader's Upper Distribution Tube per TM 9-2350-388-20-2-4.

i. Install cleaned Connector Assembly to Distribution Tube Air Hose per TM 9-2350-388-20-2-4.

j. Install cleaned Backup NBC System Y-tube and new Check Valve per TM 9-2350-388-20-2-4.

k. Install new Gunner's, Loader's and Commander's Holder Assembly per TM 9-2350-388-20-2-4.

l. Install new Gunner's, Loader's and Commander's Connector Assembly per TM 9-2350-388-20-2-4.

m. Install cleaned Gunner's, Loader's and Commander's Orifice Assembly Connector and Bracket per TM 9-2350-388-20-2-4.

n. Install new NBC Tube Assembly per TM 9-2350-388-34-1-2.

o. Install new Air Exhaust Manifold per TM 9-2350-388-20-1-5.

p. Install new Slipring Assembly per TM 9-2350-388-20-2-3.

q. Install cleaned Hose (Distribution Duct to Slipring Bent Tube) per TM 9-2350-388-20-1-5.

r. Install cleaned Tube Assembly And new Hose Assembly (Air Exhaust Manifold to Air Inlet Tube) per TM 9-2350-388-20-1-5.

s. Install cleaned Tube Assembly (Air Exhaust Manifold To Filter Inlet Manifold) per TM 9-2350-388-20-1-5.

7-6. COMPONENT AND TURRET INSTALLATION - Continued.

t. Install cleaned Tube Assembly (Air Exhaust Manifold To Hull Straight Adapter) per TM 9-2350-388-20-1-5.

u. Install cleaned NBC Duct Assembly per TM 9-2350-388-34-1-2.

v. Cut one piece of Hose (NSN 4720-01-057-0550) 100 inches ± 1/4 inch long. Install new Hose (Duct Assembly to Left Sponson) TM 9-2350-388-20-1-5.

w. Install cleaned Preformed Hose (Tube Reducer to Duct Assembly) per TM 9-2350-388-20-1-5 (including step 1).

x. Install new Air Duct Hose (Connector Assembly to Tube Reducer) per TM 9-2350-388-20-1-5.

y. Install cleaned Holder Assembly per TM 9-2350-388-20-1-5.

z. Install new Connector Assembly per TM 9-2350-388-20-1-5.

aa. Install cleaned Orifice Assembly Connector and Bracket per TM 9-2350-388-20-1-5.

bb. Install new Air Duct Hose and Quick-Disconnect Coupling Half (to Orifice connector Assembly) per TM 9-2350-388-20-1-5.

cc. Install cleaned Inlet Air Exhaust Manifold and Rigid Connecting Links per TM 9-2350-388-20-1-5.

dd. Install new NBC Check Valve per TM 9-2350-388-20-1-5.

ee. Install new Gas-Particulate Filters per TM 9-2350-388-20-1-5.

ff. Perform semiannual NBC Sponson Maintenance less systems check and leak test per TM 9-2350-388-20-1-5.

gg. Install cleaned Turret per TM 9-2350-388-34-2-2.

hh. Perform system operation and leak test per TM 9-2350-388-20-1-5.

CHAPTER 8

MATERIAL AND COMPONENT DISPOSAL

MATERIAL AND COMPONENT DISPOSAL.

a. Remove shop vac filter and place in bag. Tag bag with HAZMAT tag.

b. Remove drain pans from under vehicle. Place all water from pails, drain pans, and contents of shop vac in empty 55-gallon (208.18 liter) drum. Fine clean all surfaces of shop vac, drain pans, and pails with soapy water and rags. Rinse shop vac, drain pans, and pail with clean water and well-rung out rags. Remove excess water with rags. Allow to air dry.

c. Bag all rags, twine and other items used in cleaning process including all protective clothing. Tag bag with HAZMAT tag.

d. Place lids and retaining rings on all three 55-gallon (208.18 liter) drums. Tag drums with HAZMAT tag.

e. All bagged items and 55 gallon drums are to be turn in through your HAZMAT team.

APPENDIX A

REFERENCES

A-1 Army Regulations (AR)

AR 40-5	Preventive Medicine
AR 11-34	Army Respiratory Protection Program

A-2 Technical Manuals (TM)

TM 9-2350-264-20-1-5	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Hull (2350-01-087-1095) General Abrams
TM 9-2350-264-20-2-3	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Turret (2350-01-087-1095) General Abrams
TM 9-2350-264-20-2-4	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Turret (2350-01-087-1095) General Abrams
TM 9-2350-264-24P-1	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Hull (2350-01-087-1095) General Abrams
TM 9-2350-264-24P-2	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Turret (2350-01-087-1095) General Abrams
TM 9-2350-264-34-1-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Hull (2350-01-087-1095) General Abrams
TM 9-2350-264-34-2-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A1 Turret (2350-01-087-1095) General Abrams

A-2 Technical Manuals (TM) (cont.)

TM 9-2350-288-20-1-5	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Hull (2350-01-328-5964) General Abrams
TM 9-2350-288-20-2-3	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Turret (2350-01-328-5964) General Abrams
TM 9-2350-288-20-2-4	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Turret (2350-01-328-5964) General Abrams
TM 9-2350-288-24P-1	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Hull (2350-01-328-5964) General Abrams
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TM 9-2350-288-34-1-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Hull (2350-01-328-5964) General Abrams
TM 9-2350-288-34-2-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 Turret (2350-01-328-5964) General Abrams
TM 9-2350-388-20-1-5	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Hull (2350-01-328-5964) General Abrams
TM 9-2350-388-20-2-3	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Turret (2350-01-328-5964) General Abrams
TM 9-2350-388-20-2-4	Unit Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Turret (2350-01-328-5964) General Abrams
TM 9-2350-388-24P-1	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Hull (2350-01-328-5964) General Abrams

A-2 Technical Manuals (TM) (cont.)

TM 9-2350-388-24P-2	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts) for Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Turret (2350-01-328-5964) General Abrams
TM 9-2350-388-34-1-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Hull (2350-01-328-5964) General Abrams
TM 9-2350-388-34-2-2	Direct Support and General Support Maintenance Manual, Tank, Combat, Full-tracked: 120 MM Gun, M1A2 SEP Turret (2350-01-328-5964) General Abrams

A-3 Technical Bulletin (TB)

TB MED 502/DLAM 1000.2	Occupational and Environmental Health Respiratory Protection Program

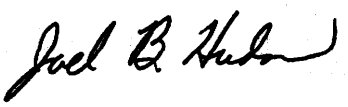
A-4 Other Publications

29 CFR 1910.134	Respiratory Protection
29 CFR 1910.1200	Hazard Communication
Material Safety Data Sheet	Material Safety Data Sheet for ASC Activated Carbon Calgon Carbon Corporation

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:



Joel B. Hudson
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3-289			A	J1-A should be J1-a.
7-148				Callout 2 should be 3.
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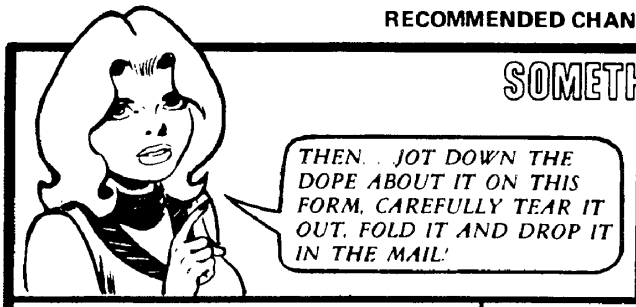

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

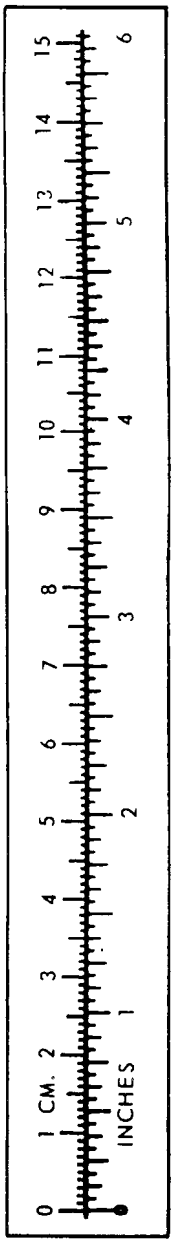
TEMPERATURE

$\frac{5}{9}(°F - 32) = °C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$\frac{9}{5}\,°C + 32 = °F$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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